Amendments to the Claims:

Please cancel claims 3, 4, 14-18, 21 and 22, amend claims 1, 5, 7, 8, 10, 12, 13, 19 and 23-26, and add new claims 28 and 29 as shown in the following listing of claims. This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A system for measuring a three-dimensional object, said system comprising:

a base;

elongate measuring members operatively connected to said base such that said elongate measuring members can be displaced with respect to said base in response to a surface of said three-dimensional object, said elongate measuring members including displacement information embedded in said elongate measuring members along the lengths of said elongate measuring members; and

means for determining displaced distances of said elongate measuring members due to said surface of said three-dimensional object, said displaced distances of said elongate measuring members being measurements of said surface of said three-dimensional object, said determining means being configured to optically use said displacement information of said elongate measuring members at displaced locations along the lengths of said elongate measuring members to determine said displaced distances.

2. (original) The system of claim 1 wherein said elongate measuring members are operatively connected to said base such that said elongate measuring members can be displaced in a direction parallel to central axes of said elongate measuring members, said central axes corresponding to the lengths of said elongate measuring members.

3. (canceled).

4. (canceled).

5. (currently amended) The system of claim 1 ~~wherein said elongate measuring members include displacement information embedded in said elongate measuring members, and~~ wherein said determining means includes optical sensors that are coupled to said base, said optical sensors being configured to optically read said displacement information embedded in said elongate measuring members at said displaced locations along the lengths of said elongate measuring members.

6. (original) The system of claim 5 wherein said elongate measuring members have reflectivity that varies along the lengths of said elongate measuring members, said reflectivity of said elongate measuring members being said displacement information embedded in said elongate measuring members.

7. (currently amended) The system of claim 5 wherein said displacement information embedded in said elongate measuring members includes ~~said elongate measuring members have~~ different codes along the length ~~lengths~~ of each of said elongate measuring members, ~~said different codes of said elongate measuring members being said displacement information embedded in said elongate measuring members~~.

8. (currently amended) The system of claim 1 wherein said elongate measuring members have transmissivity that varies along the lengths of said elongate measuring members, and wherein said determining means includes light sources and an imaging sensor, said light sources being positioned to project lights into said elongate measuring members at said displaced locations along the lengths of said elongate measuring members, said imaging sensor being positioned to capture an image of light-emitting ends of said elongate measuring members.

9. (original) The system of claim 8 further comprising a processing unit configured to process said image to determine intensities of lights emitted from said light-emitting ends of said elongate measuring members, said intensities of lights corresponding to said displaced distances of said elongate measuring members.

10. (currently amended) A system for measuring a three-dimensional object, said system comprising:

a base;

elongate measuring members operatively connected to said base such that said elongate measuring members can be displaced with respect to said base in response to a surface of said three-dimensional object; and

a displacement-determining mechanism operatively coupled to said elongate measuring members, said displacement-determining mechanism being configured to track movements ~~displaced distances~~ of said elongate measuring members to determine displaced distances of said elongate measuring members due to said surface of said three-dimensional object, said displaced distances of said elongate measuring members being measurements of said surface of said three-dimensional object.

11. (original) The system of claim 10 wherein said elongate measuring members are operatively connected to said base such that said elongate measuring members can be displaced in a direction parallel to central axes of said elongate measuring members, said central axes corresponding to the lengths of said elongate measuring members.

12. (currently amended) The system of claim 10 wherein said displacement-determining mechanism includes mechanical sensors that are coupled to said base, said mechanical sensors being configured to mechanically track ~~sense~~ displacements of said elongate measuring members.

13. (currently amended) The system of claim 10 wherein said displacement-determining mechanism includes optical sensors that are coupled to said base, said optical sensors being configured to optically track ~~sense~~ displacements of said elongate measuring members.

14. (canceled).

15. (canceled).

16. (canceled).

17. (canceled).

18. (canceled).

19. (currently amended) A method for measuring a three-dimensional object, said method comprising:

engaging a surface of said three-dimensional object with displaceable measuring members, including displacing said displaceable measuring members in response to said surface of said three-dimensional object, said displaceable measuring members including displacement information embedded in said displaceable measuring members along the lengths of said elongate measuring members; and

determining displaced distances of said displaceable measuring members by optically using said displacement information of said displaceable measuring members at displaced locations along the lengths of said displaceable measuring members, said displaced distances providing measurements of said surface of said three-dimensional object.

20. (original) The method of claim 19 wherein said displacing of said displaceable measuring members includes displacing said displaceable measuring members in a direction parallel to central axes of said displaceable measuring members, said central axes corresponding to the lengths of said displaceable measuring members.

21. (canceled).

22. (canceled).

23. (currently amended) The method of claim 19 wherein said determining of said displaced distances includes reading said displacement information embedded in said displaceable measuring members at said displaced locations along the lengths of said displaceable measuring members.

24. (currently amended) The method of claim 23 wherein said reading of said displacement information includes measuring light reflected off said displaced locations along the lengths of said displaceable measuring members, said displaceable measuring members having reflectivity that varies along the lengths of said displaceable measuring members.

25. (currently amended) The method of claim 23 wherein said reading of said displacement information includes reading codes on said displaceable measuring members at said displaced locations along the lengths of said displaceable measuring members, each of said displaceable measuring members having different codes along its length ~~the lengths of said displaceable measuring members~~.

26. (currently amended) The method of claim 19 wherein said determining of said displaced distances includes projecting lights into said displaceable measuring members at said displaced locations along the lengths of said displaceable measuring members and capturing an image of light-emitting ends of said displaceable measuring members, said displaceable measuring members having transmissivity that varies along the lengths of said displaceable measuring members.

27. (original) The method of claim 26 further comprising processing said image to determine intensities of lights emitted from said light-emitting ends of said displaceable measuring members, said intensities of lights corresponding to said displaced distances of said elongate measuring members.

28. (new) The system of claim 7 wherein said different codes along the length of each of said elongate measuring members include visual binary patterns of high and low reflective regions.

29. (new) The system of claim 12 wherein said mechanical sensors include rollers that are in constant contact with said elongate measuring members to mechanically track said displacements of said elongate measuring members.